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IS 966 (1999): Desiccated Coconut [FAD 16: Foodgrains, Starches and Ready to Eat Foods]

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शुष्क नारियल – विशिष्टि

(दूसरा पुनरीक्षण)

Indian Standard

DESICCATED COCONUT — SPECIFICATION

(Second Revision)

ICS 67.080.20

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

August 1999

Price Group 3

Bakery and Confectionery and Nutritious Supplements Industry Sectional Committee, FAD 15

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Bakery and Confectionery and Nutritious Supplements Industry Sectional Committee had been approved by the Food and Agriculture Division Council.

Desiccated coconut is a ready-to-use food product which finds a variety of uses in the bakery industry as well as in several other food preparations.

To provide guidelines to the manufacturer to ensure the quality of product being marketed, an Indian Standard was first published in 1962. Keeping in view the latest advances in technology and trade, its first revision was brought out in 1975, incorporating classification of grades in terms of particle size. In the second revision, the particle sizes and their designations have been aligned with Agmark specification and chemical requirements have been incorporated for additional parameters such as protein content, total ash and acid insoluble ash content.

While formulating this standard, due consideration has been given to the *Prevention of Food Adulteration Act*, 1954 and the Rules framed thereunder and the *Standards of Weights and Measures* (*Packaged Commodities*) *Rules,* 1977. This standard is subject to the restrictions imposed under these Rules, wherever applicable.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

DESICCATED COCONUT — SPECIFICATION

(Second Revision)

1 SCOPE

This standard prescribes the requirements and the methods of sampling and test for desiccated coconut.

2 REFERENCES

The Indian Standards listed below contain provisions which through reference in this text, constitute provision of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	*Title*
460 (Part 1) : 1985	Specification for test sieves: Part 1 Wire cloth sieves (*third revision*)
1070 : 1992	Reagent grade water (*third revision*)
2491 : 1998	Food hygiene — General principles — Code of practice (*second revision*)
4905 : 1968	Methods for random sampling
5401 : 1969	Method for detection and estimation of coliform bacteria in foodstuffs
5402 : 1969	Methods for standard plate count of bacteria in foodstuffs
5887	Methods for detection of bacteria responsible for food poisoning:
(Part 1) : 1976	Isolation, identification and enumeration of *Escherichia coli* (*first revision*)
(Part 3) : 1976	Isolation, identification and enumeration of *Salmonella* and *Shigella* (*first revision*)
7219 : 1973	Method for determination of protein in foods and feeds
9396	Round open top sanitary cans for processed foods:
(Part 1) : 1987	Tinplate requirements (*first revision*)
(Part 2) : 1987	Sizes and general requirements (*first revision*)
10171 : 1987	Guide on suitability of plastics for food packaging (*first revision*)

3 REQUIREMENTS

3.1 Description

Desiccated coconut shall be produced by a mechanical process of disintegrating cleaned and dried pieces of pared kernel of fully matured and fresh coconut obtained from *Cocos nucifera*.

3.2 The product shall be natural white in colour. It shall have a characteristic taste, odour and flavour. It shall be free from cheesy, smoky, musty, or any other objectionable odours, fungus and insect infestation. It shall be crisp, free from rancidity and not show fat sweating.

It shall not contain coconut shell testa, added starch, added sugar, papaya stem tissues or any other foreign substances, added colouring and flavouring material.

3.3 Hygienic Conditions

The material shall be manufactured and packed under hygienic conditions (*see* IS 2491). The basic principle of hygiene underlining the technical advice in this code should be applied with appropriate modification.

3.4 Particle Size

Unless otherwise specified by the purchaser, the material shall be classified as follows on basis of particle size when tested according to the method given in Annex A:

Fine — If size of particle is between 1.40 mm and 1.00 mm, or if it is retained on 1.00 mm IS test sieve.

Medium — If size of particle is between 1.70 mm and 1.40 mm, or if it is retained on 1.70 mm IS test seive.

Coarse — If size of particle is more than 1.70 mm, or if it passes through 1.70 mm IS test sieve.

3.5 Bacteriological Specifications

3.5.1 *Bacterial Count*

The bacterial colony count per gram of the product shall be absent per 0.1 g of the product when determined according to the method prescribed in IS 5402.

3.5.2 *Coliform Count*

The coliform bacteria shall be not more than 10 per g of the product when determined according to the method prescribed in IS 5401.

3.5.3 *Escherichia Coli*

Escherichia coli shall be absent per 1.0 g of the product when tested by the method prescribed in IS 5887 (Part 1).

3.5.4 *Salmonella and Shigella*

Salmonella and *Shigella* shall be absent per 25 g of sample when tested by the method prescribed in IS 5887 (Part 3).

3.6 The product shall also conform to the requirements given in Table 1.

Table 1 Requirements for Desiccated Coconut

Sl No.	Characteristic	Requirement	Method of Test, Ref to
(1)	(2)	(3)	(4)
i)	Moisture, percent by mass, *Max*	2.5	Annex B
ii)	Total ash, percent by mass, *Max*	2.0	Annex C
iii)	Acid insoluble ash, percent by mass, *Max*	0.1	Annex D
iv)	Fat, percent by mass, *Min*	65.0	Annex E
v)	Free fatty acids (expressed as lauric acid), percent by mass, *Max*	0.2	Annex F
vi)	Protein, percent by mass, *Min*	7.0	IS 7219

4 PACKING AND MARKING

4.1 Packing

The product shall be packed in hermetically sealed, clean and sound containers (*see* IS 9396) or in a flexible pack made from film or combination of any of the substrates made of board paper, polyethyelene, polyester, metallized films or aluminium foil so as to protect it from deterioration. In case plastic material is used for flexible packaging, only food grade plastic shall be used (*see* IS 10171).

4.2 Marking

4.2.1 Each container shall be suitably marked so as to give the following particulars:

a) Name of the material, and brand name, if any;
b) Name and address of the manufacturer;
c) Batch or Code number;
d) Month and year of manufacture or packing;
e) Particle size of material (*see* **3.4**);
f) Net mass;
g) The words 'Best before...', month and year to be indicated; and
h) Any other requirements as stipulated under the *Standards of Weights and Measures (Packaged Commodities) Rules*, 1977, and the *Prevention of Food Adulteration Act*, 1954 and Rules framed thereunder.

4.2.2 *BIS Certification Marking*

The product may also be marked with the Standard Mark.

4.2.2.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

5 SAMPLING

5.1 Representative samples of the material shall be drawn and tested for conformity to this standard as prescribed in Annex G.

ANNEX A

(*Clause* 3.4)

DETERMINATION OF PARTICLE SIZE

A-1 EQUIPMENT

A-1.1 Standard Test Sieves

IS test sieves [*see* IS 460 (Part 1)] of the size designation of 1.70 mm, 1.40 mm, 1.00 mm, or any other size as declared on label.

A-1.2 Mechanical Shaker

A-1.3 Weighing Balance

Open balance of capacity 200 g.

A-2 PROCEDURE

A-2.1 Make a nest of two sieves provided with cover and receiver. The upper sieve should be of lower number and the lower of upper number selected in accordance with the requirements given in **3.4**.

A-2.2 Weigh accurately about 100 g of the material into the upper sieve. Shake the material on the sieve and allow it to sieve through completely. Check the particle size in accordance with requirements given in **3.4**.

ANNEX B

[*Table* 1, *Sl No.* (i)]

DETERMINATION OF MOISTURE

B-1 PROCEDURE

B-1.1 Weigh accurately about 10 g of the material in a suitable tared dish (about 8.5 cm in diameter and provided with a slightly fitting lid). Place the dish in air-oven and dry for six hours at 100 ± 2°C. Cool the dish in a desiccator and weigh the dish with the lid on. Heat again at 100 ± 2°C in the air-oven for 30 min. Cool the dish in the desiccator and weigh. Repeat this process of heating for 30 minutes, cooling and weighing till the difference in weights between two successive weighings is less than 1 mg. Note the lowest mass.

B-2 CALCULATION

B-2.1 Moisture, percent by mass $= \dfrac{100\,(M_1 - M_2)}{(M_1 - M)}$

where

M_1 = mass in g of the dish with the material before drying,

M_2 = mass in g of the dish with the material after drying, and

M = mass in g of the empty dish.

ANNEX C

[*Table* 1, *Sl No.* (ii)]

DETERMINATION OF TOTAL ASH

C-1 PROCEDURE

C-1.1 Weigh accurately about 5 g of the preserved material (*see* **B-1.1**) in a tared, clean and dry porcelain or silica dish. Ignite the material in the dish with the flame of a suitable burner for about 1 hour. Complete the ignition by keeping in a muffle furnace at 550 ± 10°C until grey ash results. Cool in a desiccator and weigh. Repeat the process of igniting, cooling and weighing at half-hour intervals until the difference between two successive weighings is less than 1 mg. Note the lowest mass. Preserve this ash for the determination of acid insoluble ash (*see* **D-2.1**).

C-2 CALCULATION

C-2.1 Total ash (on dry basis), percent by mass $= \dfrac{100\,(M_2 - M)}{(M_1 - M)}$

where

M_2 = mass in g of the dish with the ash;

M = mass in g of the empty dish; and

M_1 = mass in g of the dish with the dried material taken for the test.

ANNEX D

[*Table* 1, *Sl No.* (iii)]

DETERMINATION OF ACID INSOLUBLE ASH

D-1 REAGENT

D-1.1 Dilute Hydrochloric Acid

Approximately 5 N, prepared from concentrated hydrochloric acid.

D-2 PROCEDURE

D-2.1 To the ash contained in the porcelain or silica dish (C-1.1) add 25 ml of dilute hydrochloric acid, cover with a watch-glass and heat on a water-bath for 10 minutes. Allow to cool and filter the contents of the dish through Whatman filter paper No. 42 or its equivalent. Wash the filter with water until the washings are free from the acid. Return the filter and the residue to the dish. Keep it in an electric air-oven maintained at 130 to 133°C for about 3 hours. Ignite in a muffle furnace at about 550 ± 10°C for one hour. Cool the dish in a desiccator and weigh. Repeat the process of igniting in the muffle furnace, cooling and weighing at half-hour intervals until the difference between two successive weighings is less than 1 mg. Note the lowest mass.

D-3 CALCULATION

D-3.1 Acid insoluble ash (on dry basis), percent by mass $= \dfrac{100\,(M_2 - M)}{(M_1 - M)}$

where

M_2 = mass in g of the dish with the acid insoluble ash;

M = mass in g of the empty dish; and

M_1 = mass in g of the dish with the dried material taken for the determination of total ash (*see* **C-1.1**).

ANNEX E

[*Table* 1, *Sl No.* (iv)]

DETERMINATION OF FAT

E-1 APPARATUS

E-1.1 Soxhlet Extraction Apparatus

E-2 REAGENT

E-2.1 Petroleum Ether — distilling below 60°C.

E-3 PROCEDURE

E-3.1 Weigh accurately about 10 g of the material in a suitable thimble and dry for 2 hours at 100 ±2°C. Place the thimble in the soxhlet extraction apparatus and extract with the solvent for about 16 hours. Dry the extract contained in the soxhlet flask, the empty mass of which has been previously determined, at 95 to 100°C for an hour. Cool in a desiccator and weigh. Continue the alternate drying and weighing at 30 minutes intervals until the loss in mass between two successive weighings is not more than 1 mg. Record the lowest mass. Preserve the fat for the determination of free fatty acids (*see* Annex F).

E-4 CALCULATION

E-4.1 Fat, percent by mass $= \dfrac{100(M_1 - M_2)}{M}$

where

M_1 = mass in g of the soxhlet flask with the extracted fat;

M_2 = mass in g of the empty soxhlet flask, clean and dry; and

M = mass in g of the material taken for the test.

ANNEX F

[*Table* 1, *Sl No.* (v) and *Clause* E-3.1]

DETERMINATION OF FREE FATTY ACID

F-1 REAGENTS

F-1.1 Ethyl Alcohol

95 percent (by volume), neutral to phenolphthalein.

F-1.2 Phenolphthalein Indicator Solution

one percent (*m/v*) solution in ethyl alcohol or rectified spirit.

F-1.3 Standard Potassium Hydroxide Solution

0.1 N, aqueous solution.

F-2 PROCEDURE

F-2.1 Weigh accurately about 5 g of the fat (*see* **E-3.1**) in a 250 ml Erlenmeyer flask. Add about 50 ml of hot alcohol and add 1.0 ml of phenolphthalein indicator. Bring it to the boiling point and while still hot, titrate with the standard potassium hydroxide solution shaking vigorously during the titration. The end point of the titration is reached when the addition of a single drop produces a slight but definite pink colour persisting for at least 15 seconds.

F-3 CALCULATION

F-3.1 Free fatty acids (as lauric acid), percent by mass $= \frac{20\,VN}{M}$

where

V = volume in ml of the standard potassium hydroxide solution used,

N = normality of the standard potassium hydroxide solution, and

M = mass in g of the fat taken for the test (*see* **E-3.1**).

ANNEX G

(*Clause* 5.1)

SAMPLING FOR DESICCATED COCONUT

G-1 GENERAL REQUIREMENT OF SAMPLING

G-1.0 In drawing, preparing, storing and handling samples, the following precautions and directions shall be observed.

G-1.1 Samples shall be taken in protected place not exposed to damp air, dust or soot.

G-1.2 The sampling instrument shall be clean and dry when used.

G-1.3 Precautions shall be taken to protect the samples, the material being sampled, the sampling instrument and the containers for samples from adventitious contamination.

G-1.4 The samples shall be placed in clean and dry glass containers. The sample containers shall be of such size that they are almost completely filled by the sample.

G-1.5 Each container shall be sealed air-tight after filling and marked with full details of sampling, date of sampling, batch or code number, name of the manufacturer and other important particulars of the consignment.

G-1.6 Samples shall be stored in such a manner that the temperature of the material does not vary unduly from the normal temperature.

G-2 SCALE OF SAMPLING

G-2.1 Lot

All the containers in a single consignment of the material drawn from a single batch of manufacture shall constitute a lot. If the consignment is declared to consist of different batches of manufacture, the batches shall be marked separately and the groups of containers in each batch shall constitute separate lots.

G-2.1.1 Each lot shall be tested for ascertaining the conformity of the material to the requirement of this specification.

G-2.2 The number of containers to be selected shall be according to col 1 and 2 of Table 2.

G-2.3 The containers shall be selected at random from the lot. To ensure the randomness of selection a random number table as agreed to between the purchaser and the vendor shall be used (*see* IS 4905).

Table 2 Scale of Sampling

(*Clause* G-2.2)

Lot Size *N* (1)	Sample Size *n* (2)
Up to 50	2
51 to 150	3
151 to 300	5
301 to 500	7
501 to 1 000	8
1 001 and above	9

In case such a table is not available the following procedure shall be adopted:

> Starting from any container, count them as 1, 2, 3.... up to *r* and so on in one order where *r* is the integral part of *N* (*N* being the number of containers in the lot and *n* number of containers to be selected). Every *r*th container thus counted shall be withdrawn to give the required number of container in the sample.

G-3 PREPARATION OF TEST SAMPLES

G-3.1 Preparation of Test Samples for other than Particle Size

Draw with a suitable sampling instrument approximately equal quantities of the material from different parts of the container till the quantity collected is about 75 g and divide it into three equal parts. Each part so obtained shall constitute a sample representing the container and shall be transferred immediately to thoroughly clean and dry containers sealed air-tight with particulars given in **G-1.5**. The individual samples so obtained shall be divided into three sets in such a way that each set has a sample representing each selected container. One of these shall be marked for the purchaser another for the vendor and the third for the referee. Referee samples shall be kept at a place as agreed to between the purchaser and the vendor and shall bear the seals of purchaser and the vendor.

G-3.2 Preparation of Test Sample for Particle Size

From the remaining material left out after taking the samples as per **G-3.1** of each of the selected containers, equal quantity of material shall be taken and mixed together so as to form a composite sample weighing not less than 300 g. This composite sample shall be divided into three equal parts and transferred to clean dried containers sealed air-tight and marked with particulars given in **G-1.5**. One of these shall be marked for the purchaser, another for the vendor and the third for the referee. Referee samples shall be kept at a place as agreed to between the purchaser and the vendor and shall bear the seals of the purchaser and the vendor.

G-4 NUMBER OF TESTS AND CRITERIA FOR CONFORMITY

G-4.1 Tests for bacteriological specifications, moisture, total ash, acid insoluble ash, free fatty acids, fat and protein content shall be conducted on each of the individual samples (*see* **G-3.1**).

G-4.2 Test for particle size shall be conducted on the composite sample prepared as in **G-3.2**.

G-4.3 The lot shall be declared as conforming to this specification when the test results on each of the individual samples (*see* **G-4.1**) and the test results on particle size (*see* **G-4.2**) satisfy the corresponding requirements.